

ABSTRACT OF THE DISCLOSURE

Method for in-situ sampling and measuring particulate (*e.g.*, carbon black) fineness in a process stream, such as in a carbon black reactor, comprising (a) sampling particles in-situ from a process stream, (b) adjusting the sample to conditions suitable for LII, (c) measuring the fineness using LII, and (d) correlating the LII fineness measurement with actual particle fineness. Method for in-situ sampling a particle-containing stream and measuring particle fineness using laser-induced incandescence (LII) comprising (a) sampling particles in-situ, (b) adjusting the sample to conditions suitable for LII, (c) measuring the adjusted sample using LII, and (d) correlating the LII measurements with actual particle fineness. Also included is a method of sampling and controlling a process based on the real-time, on-line, in-situ methods for sampling and measuring particles. Sampling can comprise drawing a sidestream from a source of the particles. Adjusting the sample to conditions suitable for LII can comprise diluting the sample or bringing the temperature of the sample to ambient conditions. Correlating may comprise using a correlation function determined by comparing LII measurements and laboratory fineness measurements for particle samples drawn at the same time.